PATENT NC 96,172

What is claimed is:

A process for making a gradient material, comprising the steps of:
employing a screw extruder system having material input conditions, operating
conditions, and hardware element configurations; and,

introducing disturbances into at least one of the material input conditions, operating conditions, or hardware element configurations wherein a gradient material is formed by the screw extruder system.

- 2. The process of claim 1, wherein the screw extruder system comprises a twin screw extruder system.
- 3. The process of claim 2, wherein the disturbances are selected from the group of step disturbances, linear ramp disturbances, non-linear ramp disturbances, or a combination thereof.
 - 4. The process of claim 3, wherein at least one material input condition is disturbed.
- 5. The process of claim 4, wherein the at least one material input condition comprises at least one ingredient feeding rate.
 - 6. The process of claim 3, wherein at least one operating condition is disturbed.
- 7. The process of claim 6, wherein the at least one operating condition is selected from the group of a screw speed, system temperature, system pressure, or a combination thereof.
- 8. The process of claim 7, wherein the at least one operating condition comprises the screw speed.
- 9. The process of claim 2, wherein the hardware element configurations are selected from the group of a screw geometry, die geometry, ingredient feeding locations, or a combination thereof.